PRO BOAT

FORMULA

FORMULABOATS.COM

1/8-Scale Formula Hydro Unlimited Hydroplane Owner's Manual

Officially Licensed replica of the 2006 ABRA High Points Champion.

Specifications

Length	45.25 in (1131.3mm)
Beam	23.75 in (593.8mm)
Engine	Zenoah G26M and Tuned Exhaust
Speed	35+ mph
Radio System	JR XR3i FM 75MHz

Introduction

Congratulations on the purchase of your Pro Boat™ Formula Hydro. This is a 1/8-scale replica of the world famous full-scale hydro. You are just minutes from one of the most thrilling experiences the radio control hobby has to offer.

The Pro Boat Formula Hydro is a professionally built, ready-to-run, 1/8-scale fiberglass model of one of the most competitive race boats on the Unlimited Hydroplane tour. Powered by the potent Zenoah® G26M engine, you will be able to race across the water at speeds in excess of 35 mph!

It is very important that you operate this boat responsibly. With proper care and maintenance, you will be able to enjoy your Formula Hydro for many years to come.

Carefully unpack your Formula Hydro and examine the boat and its contents. The box should contain the Formula Hydro RTR with radio installed, a boat stand, and the JR® XR3i radio transmitter. If you are missing any of these items or notice any damage, immediately contact the place of purchase.

Read this owner's manual thoroughly. You also need to read the included Zenoah G26M engine manual, along with the JR XR3i pistol-grip radio system manual.

Table of Contents

Limited Warranty & Limits of Liability 3
Additional Required Items 6
Suggested Field Equipment and Supplies 6
Contents 6
Section 1: Building the Boat Stand 7
Section 2: Attaching the Turn Fin 7
Section 3: Removing the Canopy 8
Section 4: Installing the Radio System Batteries 8
Section 5: Installing the Rudder 10
Section 6: Propeller Balancing 10
Section 7: Filling the Fuel Tank 11
Section 8: Fuel/Oil Mixture 11
Section 9: Range Check the XR3i Radio System 11
Section 10: Starting the Engine 12
Section 11: Initial Launch of the Formula Hydro 13
Section 12: Stopping the Engine 13
Section 13: Cooling System 14
Section 14: Clutch 15
Section 15: Troubleshooting Guide 16
Section 16: Hull Care 16
Section 17: Maintenance 16
Section 18: Replacement Parts 18
Appendix 19

Limited Warranty & Limits of Liability

Warranty Period

Exclusive Warranty- Horizon Hobby, Inc., (Horizon) warranties that the Products purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase by the Purchaser.

Limited Warranty

(a) This warranty is limited to the original Purchaser ("Purchaser") and is not transferable. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. This warranty covers only those Products purchased from an authorized Horizon dealer. Third party transactions are not covered by this warranty. Proof of purchase is required for warranty claims. Further, Horizon reserves the right to change or modify this warranty without notice and disclaims all other warranties, express or implied.

(b) Limitations- HORIZON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

(c) Purchaser Remedy- Horizon's sole obligation hereunder shall be that Horizon will, at its option, (i) repair or (ii) replace, any Product determined by Horizon to be defective. In the event of a defect, these are the Purchaser's exclusive remedies. Horizon reserves the right to inspect any and all equipment involved in a warranty claim. Repair or replacement decisions are at the sole discretion of Horizon. This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product. This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than Horizon. Return of any goods by Purchaser must be approved in writing by Horizon before shipment.

Damage Limits

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

If you as the Purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

Law: These Terms are governed by Illinois law (without regard to conflict of law principals).

Safety Precautions

This is a sophisticated hobby Product and not a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the Product or other property. This Product is not intended for use by children without direct adult supervision. The Product manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or injury.

Questions, Assistance, and Repairs

Your local hobby store and/or place of purchase cannot provide warranty support or repair. Once assembly, setup or use of the Product has been started, you must contact Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please direct your email to productsupport@horizonhobby.com, or call 877.504.0233 toll free to speak to a service technician.

Inspection or Repairs

If this Product needs to be inspected or repaired, please call for a Return Merchandise Authorization (RMA). Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as **Horizon is not responsible for merchandise until it arrives and is accepted at our facility**. A Service Repair Request is available at www.horizonhobby.com on the "Support" tab. If you do not have internet access, please include a letter with your complete name, street address, email address and phone number where you can be reached during business days, your RMA number, a list of the included items, method of payment for any non-warranty expenses and a brief summary of the problem. Your original sales receipt must also be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

Warranty Inspection and Repairs

To receive warranty service, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be repaired or replaced free of charge. Repair or replacement decisions are at the sole discretion of Horizon Hobby.

Non-Warranty Repairs

Should your repair not be covered by warranty the repair will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for repair you are agreeing to payment of the repair without notification. Repair estimates are available upon request. You must include this request with your repair. Non-warranty repair estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Please advise us of your preferred method of payment. Horizon accepts money orders and cashiers checks, as well as Visa, MasterCard, American Express, and Discover cards. If you choose to pay by credit card, please include your credit card number and expiration date. Any repair left unpaid or unclaimed after 90 days will be considered abandoned and will be disposed of accordingly. **Please note: non-warranty repair is only available on electronics and model engines.**

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Service Center
4105 Fieldstone Road
Champaign, Illinois 61822

All other Products requiring warranty inspection or repair should be shipped to the following address:

Horizon Product Support
4105 Fieldstone Road
Champaign, Illinois 61822

Please call 877-504-0233 with any questions or concerns regarding this product or warranty.

Safety, Precautions, and Warnings

As the user of this product, you are solely responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) that you use.

This model is controlled by a radio signal that is subject to interference from many sources outside your control. This interference can cause momentary loss of control so it is necessary to always keep a safe distance in all directions around your model, as this margin will help to avoid collisions or injury.

- Always operate your model in an open area away from cars, traffic, or people.
- Avoid operating your model in the street where injury or damage can occur.
- Never operate the model out into the street or populated areas for any reason.
- Never operate your model with low transmitter batteries.
- Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) that you use.
- Keep all chemicals, small parts and anything electrical out of the reach of children.
- Moisture causes damage to electronics. Avoid water exposure to all equipment not specifically designed and protected for this purpose.

General Guidelines

It is important that you read and follow this instruction manual, along with the JR® XR3i radio system manual and the Zenoah® G26 engine manual, before you run this exciting boat. Failure to read and understand the manual could result is personal injury, property damage or permanent damage to your boat! It is also important to run your boat responsibly. With proper care and maintenance, you will be able to proudly enjoy your Formula Hydro for many years to come.

This boat has been designed to race in an oval path, just like its full scale counterpart. At high speeds do not attempt turns to the left, as the boat may become unstable. If you have to turn left, do so in a large diameter turn and at slow speeds.

When operating the boat, stay clear of people, full-scale boats, stationary objects and wildlife. It is preferable to operate the Formula Hydro in low wake, low wind conditions and in areas free of people, wildlife and objects.

Before you operate your model, make sure that your frequency is clear. If someone is operating on the same frequency, both models could go out of control, possibly causing damage to the models or to others. Check all of the hardware, manifold, pipe and propeller for security before and after each run.

If at any time while operating your model you sense any abnormal function, end your operation immediately. Do not operate your boat again until you are certain the problem has been corrected. **Always stay clear of the propeller.**

Additional Required Items

Although the Formula Hydro comes fully assembled and ready for action, you will need a few additional items in order to run your boat. You will need the following:

Zenoah® 2-Cycle Oil (ZEN20001)
CA or epoxy glue
Fuel container
Threadlock
Fuel Pump (HAN155)
12 AA alkaline batteries (8 for the transmitter and 4 for the receiver)
Gasoline (87 or higher Octane), ethanol-free

Suggested Field Equipment and Supplies

In addition to the items needed to run the Formula Hydro, we recommend that you carry the following in your field box:

Flex Shaft Lubrication (PRB0100, PRB0101)
Engine Tuning Screwdriver (DYN2775)
Clean towels
Extra Propellers (PRB0153)
2mm hex wrench
2.5mm hex wrench
4mm hex wrench
#1 Phillips
Small crescent wrench
Wax
Screw-locking compound

Contents

• Assembled 1/8 scale Formula Hydro RTR
• JR® XR3i radio transmitter
• Boat stand
• Rudder

Section 1: Building the Boat Stand

Parts Required
Plywood boat stand pieces (4)

Tools and Adhesives Needed
CA or epoxy

❑ 1. Attach the side boat stand pieces by interlocking them into the end pieces as shown.

❑ 2. Secure the interlocking boat stand with medium thick CA or epoxy. Make certain you allow the CA or epoxy to fully cure before placing the boat on the stand.

Section 2: Attaching the Turn Fin

Parts Required
Turn Fin
3mm hex screws (2)

Tools and Adhesives Needed
3mm hex driver
Blue threadlock

❑ 1. Locate the included turn fin. This will be attached to the right sponson. Any attempt to turn the boat left may cause the boat to flip, especially if this is done in a tight diameter and at high speeds.

❑ 2. Place the Formula Hydro on the completed boat stand once the glue has fully cured.

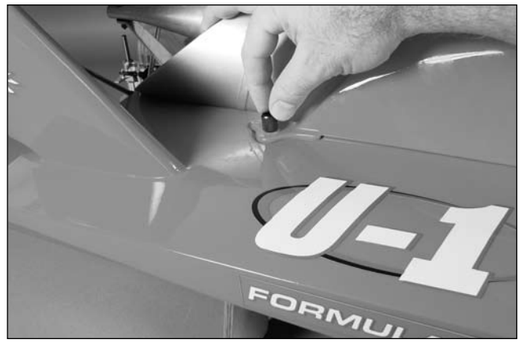
❑ 3. Locate the turn fin and the included 3mm hex screws (2) to secure the turn fin.

❑ 4. Carefully place a few drops of blue threadlock on the threads of both hex screws. This will help to keep the screws secured to the blind nuts within the sponson.

❑ 5. Carefully attach the turn fin onto the right sponson as shown and tighten the hex screws with a 3mm hex driver.

Section 3: Removing the Canopy

Unscrew the 2 knurled hatch-mounting screws from the rear of the hatch. Lift the hatch from the boat.



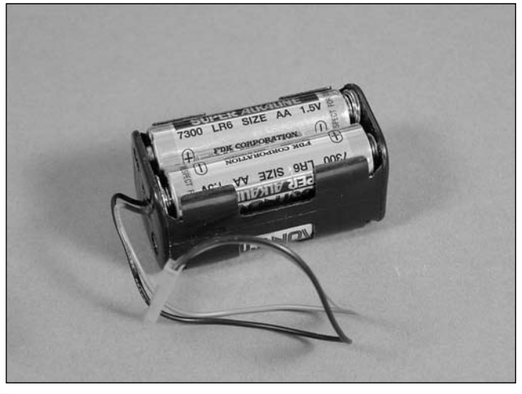
Section 4: Installing the Radio System Batteries

Tools and Accessories Required

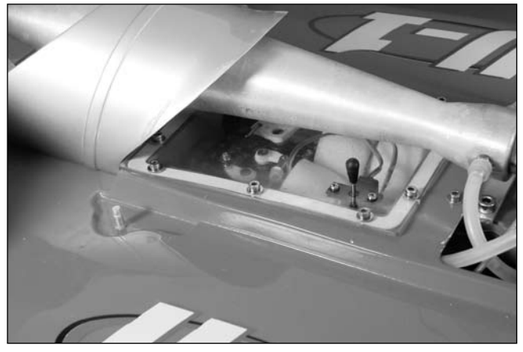
12 AA batteries
2.5mm hex wrench

Receiver Batteries

❑ 1. Remove the 2.5mm hex head screws that secure the clear Lexan radio box cover.



❑ 2. Remove the receiver battery holder and install 4 “AA” alkaline batteries in the battery holder. Note proper polarity.



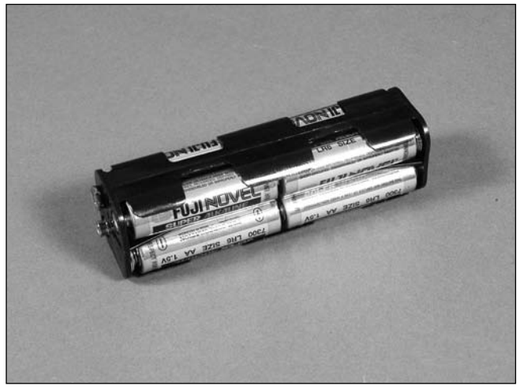
❑ 3. Plug the switch harness into both the receiver and the battery box following the instructions provided with the radio. Secure the radio box cover with the hex head screws.

Section 4: Installing the Radio System Batteries (cont)

Transmitter Batteries

❑ 1. Remove the transmitter from the box.

❑ 2. Remove the battery cover on the bottom of the transmitter.



❑ 3. Insert 8 AA alkaline batteries into the battery holder. Note proper polarity.

❑ 4. Insert the battery holder in the transmitter following the directions provided with the radio system.

❑ 5. Install the battery cover back into position on the bottom of the transmitter.

❑ 6. Turn on the transmitter and confirm that the LCD illuminates, indicating proper installation of fully charged batteries.

❑ 7. Turn on the receiver switch and move the controls. Confirm that all controls operate in the proper direction and are controlled by the proper transmitter input.

❑ 8. Turn the transmitter and the receiver switch off. To keep the boat from receiving stray signals, the transmitter should be turned on first, followed by the receiver. Likewise, the receiver should be turned off first, then the transmitter.

Note: Remember the transmitter must be sending a signal the entire time the receiver is on.

Section 5: Installing the Rudder

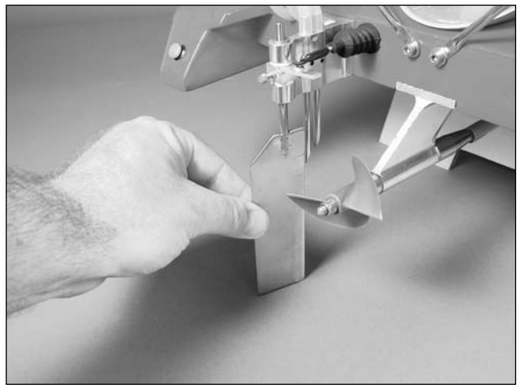
Parts Required

Rudder
2.5mm hex screw

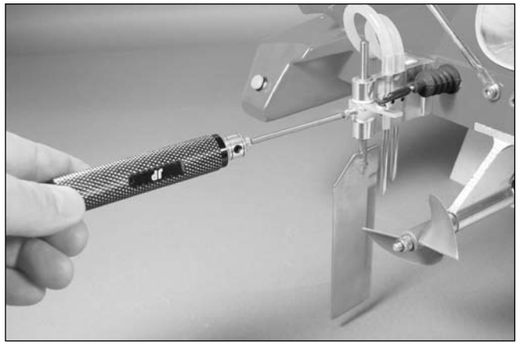
Tools and Adhesives Required

2.5mm hex driver

❑ 1. Locate the stainless steel rudder and 2.5mm hex screw.



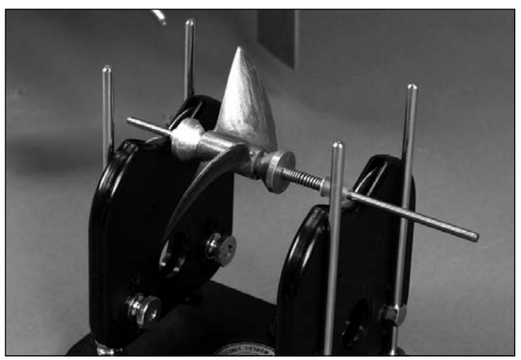
❑ 2. Carefully insert the rudder as shown.



❑ 3. Find the flat spot on the rudder. Put screw locking compound on the 2.5mm hex screw threads and tighten the screw on the flat spot as shown.

Section 6: Propeller Balancing

For optimum performance, propeller balancing can add several mph to top speed and reduce vibration. There are several different propeller balancing tools available. Read the instructions that accompany the propeller balancing tool regarding removing material from the propeller. Removing material from the correct part of the propeller is crucial to the performance of the propeller. Contact a local hobby retail store for assistance.



Section 7: Filling the Fuel Tank

Use only Zenoah® 2-cycle synthetic oil and gasoline mixed 32:1 to power the Formula Hydro. Keep the fuel in a moisture-free environment, as stale fuel will cause the Zenoah G26M engine to lose performance.

Section 8: Fuel/Oil Mixture

Parts Needed

Unleaded gasoline
Zenoah® 2-stroke oil

❑ 1. Mix gasoline and 2-stroke oil (ZEN20001) at a mixing ratio of 32:1 (gas to oil).

❑ 2. Remove the fuel tank cap and fill the fuel tank with the gasoline and oil mixture. Use a funnel to prevent spills. If you do spill, be certain to immediately wipe it up with a clean towel.

Section 9: Range Check the XR3i Radio System

Important

Range check your radio system before the first run of the Formula Hydro to make certain it is functioning correctly. Make sure that the receiver antenna is extended properly.

❑ 1. With the boat in its stand, the radio system turned on and the transmitter antenna down, walk off 30 paces (90 feet) from the Pro Boat™ Formula Hydro.

❑ 2. Have an assistant remain with the boat to check for proper control movement from your transmitter input. When you are satisfied that the radio is functioning properly, you can continue.

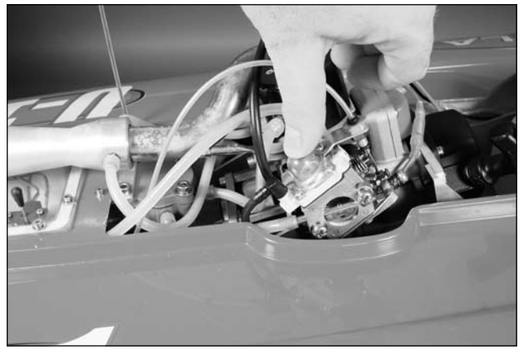
Note: Always perform a range check prior to operating your boat after any major repair, installation of new batteries or at the beginning of each boating session.

❑ 3. With your assistant again 90 feet away, re-start the engine. Quickly repeat the same range check as above, carefully making sure you observe proper control movement from your transmitter input. Make certain you complete this within 60 seconds to prevent the engine from overheating. Push the kill switch to stop the engine. Once you are satisfied your radio system has passed the range check, you are ready to start the engine and launch your boat.

Section 10: Starting the Engine

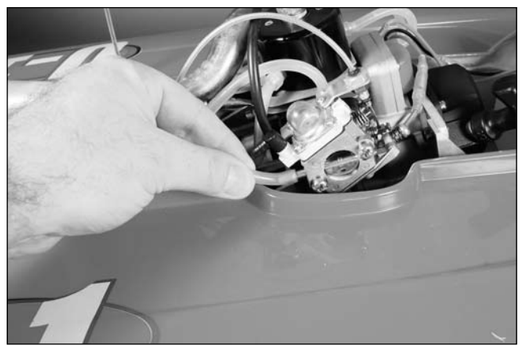
Note: The Zenoah® G26M carburetor is factory adjusted to deliver optimum performance. See the Zenoah Engine manual for fine-tuning adjustments and other helpful information to make your RC boating experience trouble-free.

Priming the Engine



Press the priming bulb several times until it becomes filled with fuel. This is not necessary if the engine has recently been run.

Choking the Engine



Close the choke by rotating the small yellow tubing extension. This is not necessary if the engine is warm.

Pull-starting the Engine

With an assistant holding the boat to the boat stand and bracing the engine with one hand, pull the starting cord briskly several times. Once the engine fires (begins to start), open the choke. Prolonged choking will flood the engine with fuel. See Section 15: Troubleshooting Guide to correct the flooding condition.

Note: The engine is water-cooled. Refrain from running the engine without proper cooling water or engine damage will result. Carefully place the boat in the water as soon as possible after the engine has been started.

Section 11: Initial Launch of the Formula Hydro

With the transmitter antenna up, maneuver the Formula Hydro in an oval, turning only to the right at slow to medium speeds. Make certain that the boat and radio system are functioning correctly.

As you are running the Formula Hydro in an oval, watch for water being discharged from the water outlets on the left side of the hull. Water flowing from the water outlet indicates the engine is being properly cooled. If you do not notice any water coming from the water outlet, bring the boat in and make sure that the water cooling line or the water pickup located near the rudder are not clogged.

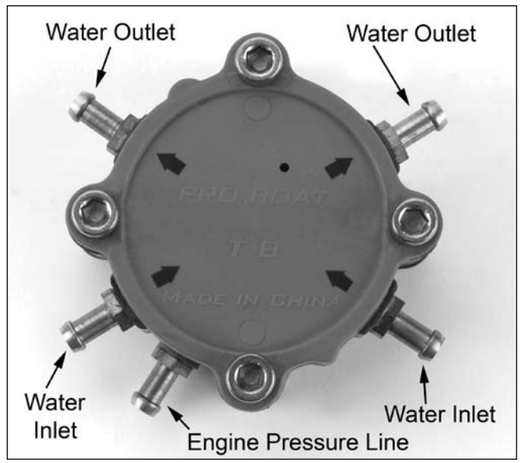
If at anytime you notice the boat and/or radio system are not functioning correctly, end the operation of the boat immediately and do not run the boat again until you are confident the problems have been corrected.

Section 12: Stopping the Engine

Idle the boat near shore and press the kill switch located on top of the cockpit as shown.

Section 13: Cooling System

Water Pump

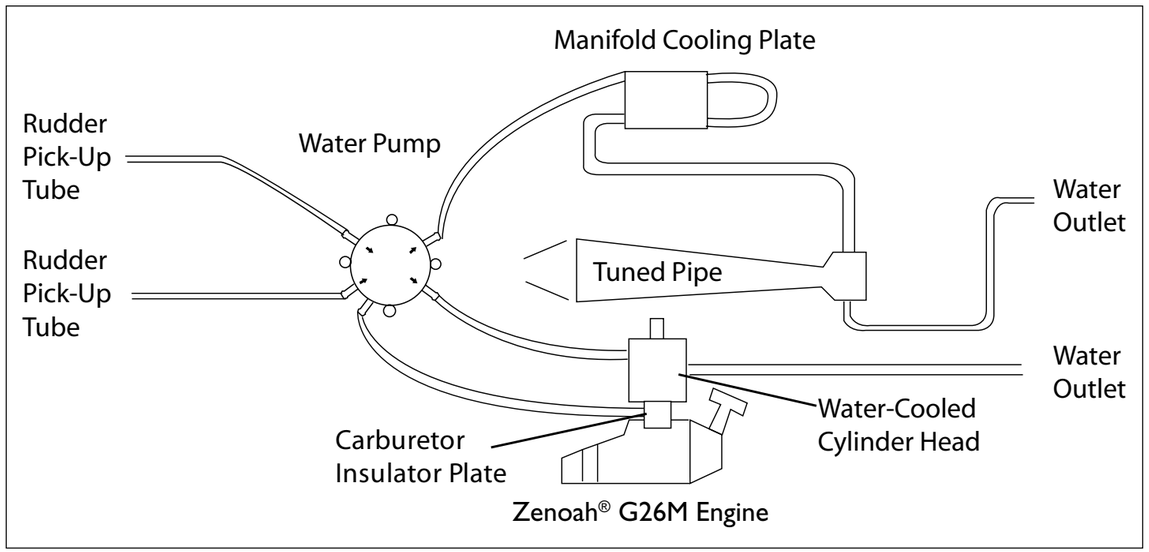


The water pump is operated from crankcase pressure. Be sure that water is exiting the 2 water jackets mounted on the left side of the boat when the engine is running and the boat is in the water. If water does not stream out of either the exhaust or cylinder head cooling ports, immediately stop engine operation and remove obstructions in the lines or replace broken cooling lines.

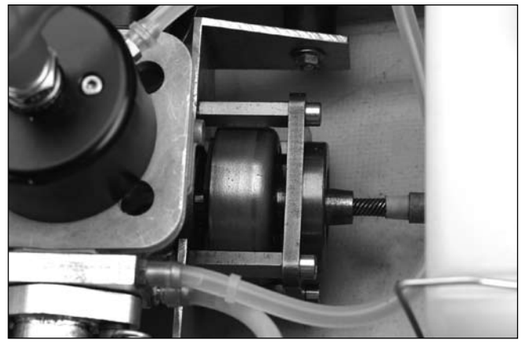
Hint: To test each cooling line for obstructions or a leak in the cooling system, place a piece of tubing over the water inlet tubes in front of the rudder and blow into the tube. When testing for obstructions in the cooling system, be sure to isolate each system by pinching the appropriate water lines.

Water-Cooled Cylinder Head and Exhaust Manifold Cooling Jacket

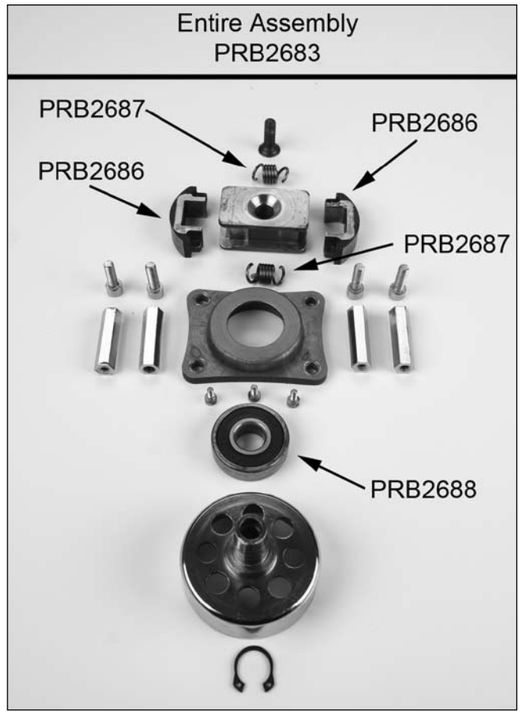
The exhaust system is cooled independently from the cylinder head. See line drawings for proper cooling line routing. Do not alter the cooling line routing method.



Section 14: Clutch



The centrifugal clutch automatically engages when the engine rpm is increased. Be sure that the idle speed adjustment is set low enough so that the propeller does not rotate at idle.



Periodically disassemble the clutch and clean debris from the clutch shoes and the inner clutch bell with DYN5505 Dynamite® Nitro Force.

Section 15: Troubleshooting Guide

Problem	Possible Solution
Engine will not start	Improper needle setting: see Zenoah® engine manual Out of fuel: fill fuel tank Improper fuel: use fresh gasoline & Zenoah 2-cycle oil (mixed 32 parts gas to 1 part oil) Bad spark plug: replace spark plug Flooded engine: remove spark plug, invert boat and operate the pull-starter to remove fuel
Engine starts, then dies	Fuel line blocked or broken: connect or replace fuel line Reset needles to baseline setting: see Zenoah instructions Baseline settings for low-speed and hi-speed needle valves is 1–1 1/4 turns out
Engine starts and runs for several minutes, then dies	Bad fuel: replace Improper needle settings: see Zenoah engine manual Overheated engine: check for clogged or damaged cooling system Debris in carburetor: remove, clean and replace

Section 16: Hull Care

The hull of the Formula Hydro is finished using the highest quality paints and the most advanced painting methods available. The base coat/clear cote technique delivers an amazing shine that is as durable as it is beautiful. To keep your Formula Hydro looking new, you should apply a wax coating to the top of the hull as used on automotive finishes to prevent oxidation and to further protect against damage caused by fuel and other harmful chemicals. Also, keep boat out of direct sunlight for extended periods of time to prevent fading.

Section 17: Maintenance

The Pro Boat™ Formula Hydro should provide many hours of exciting high-speed racing fun with just minor maintenance. Preventative maintenance is very important. Taking the time to make sure all of the screws and bolts are properly secured before each run and after each operation, and regularly lubricating the flex cable will prevent many problems.

Replacement parts are available from Pro Boat. See the back of this manual for specific descriptions and item numbers.

Items Required

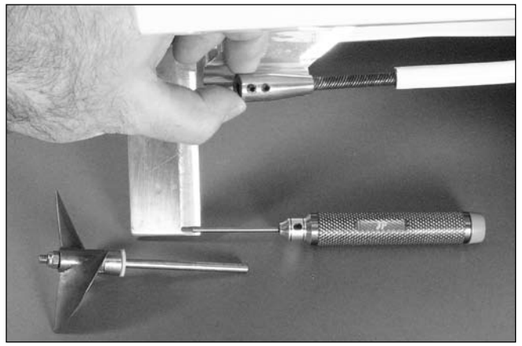
2mm hex wrench
Waterproof grease
Threadlocking compound

It is vitally important to properly lubricate the flex drive shaft and the propeller shaft with heavy cable grease every 5–10 hours of operation. You will also find that it will eventually become necessary to replace the Teflon liner sleeve of the drive shaft. At some point, it may also become necessary to replace the drive shaft (flex cable) as well.

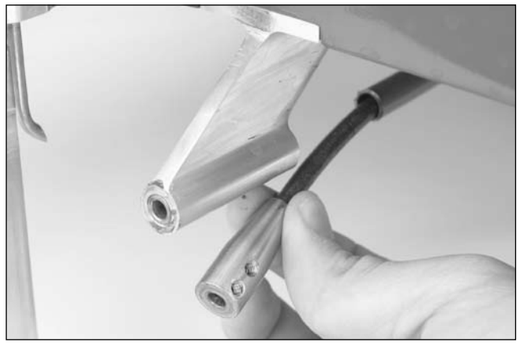
Section 17: Maintenance (cont)

Simply follow the instructions below to properly lubricate your drive shaft.

❑ 1. Carefully note how the entire drive shaft is installed. This is pivotal in order to properly reassemble the drive shaft after you have finished lubricating it.

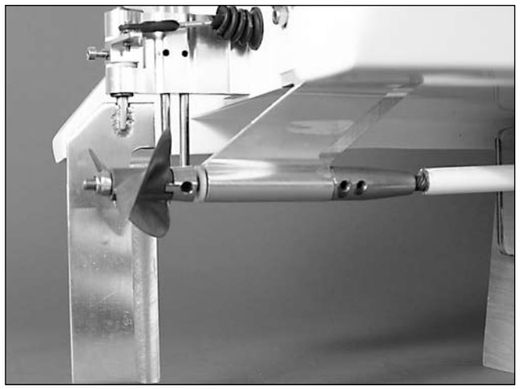


❑ 2. Loosen and remove the two 2.0mm set screws that secure the propeller shaft to the brass ferrule. Remove the prop drive dog and nylon washer.



❑ 3. Remove the drive shaft flex cable. Replace the Teflon liner as needed.

❑ 4. Lubricate the entire flex cable with waterproof grease (PRB0100) as shown and then reinstall the flex cable back through the liner and stuffing box and into the clutch.



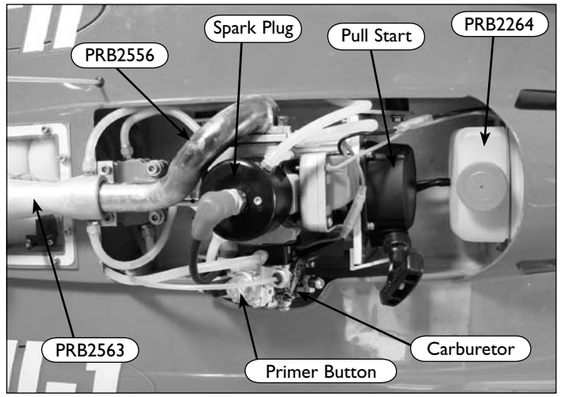
❑ 5. Reassemble in reverse order. Make sure that the setscrews are tightened down on the flat spots of the prop shaft. Also be certain to place a drop of threadlock on each setscrew before retightening them.

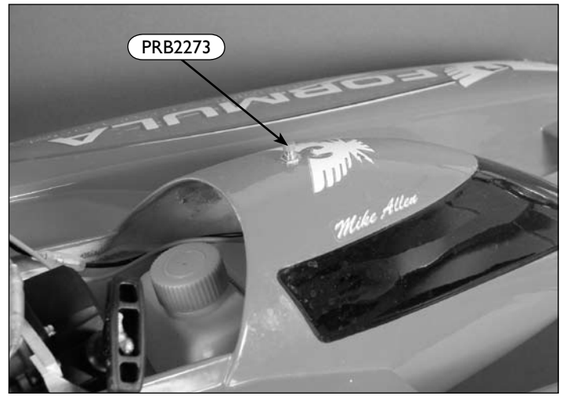
Section 18: Replacement Parts

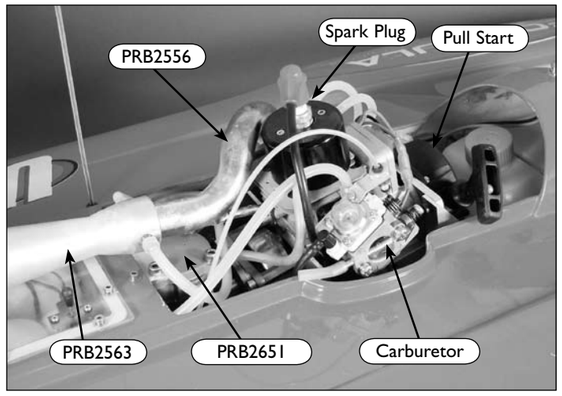
Your local hobby store should carry a good supply of Formula Hydro replacement parts. You can also purchase these parts from Horizon Hobby at **www.horizonhobby.com** or call toll-free **1-800-338-4639**.

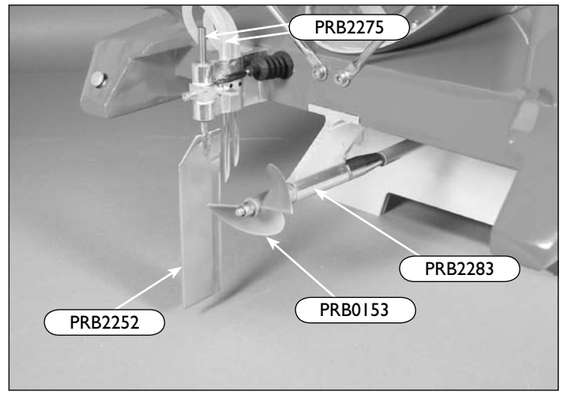
PRB3251	Hull
PRB3252	Cockpit
PRB2261	Exhaust Cover
PRB3253	Wing
PRB2255	Wing Struts
PRB3255	Boat Stand
PRB2297	Manifold Cooling Plate
PRB2555	Servo Tray set
PRB2264	Fuel Tank
PRB2273	Kill Switch
PRB2268	Throttle Cable with EZ Connector
PRB2556	Manifold with Screws
PRB2557	Cooling Tubing
PRB2558	Fuel Tank Strap
PRB2559	Rudder Pushrod Set
PRB2560	Servo Pushrod Set
PRB2561	Cover for Radio Box
PRB2562	Flex Shaft
PRB2266	Teflon Liner
PRB2281	Prop Drive Dog
PRB2283	Prop Strut
PRB2282	Prop Shaft
PRB2252	Rudder
PRB2254	Turn Fin with Hardware
PRB2259	Pipe Mount
PRB2563	Tuned Pipe
PRB2278	Cockpit Nuts (2)
PRB2288	Nylon Washers (4)
PRB2564	Brass Tube for Water Inlet
PRB2251	Rudder Bracket/Arm
PRB2651	Water Pump
PRB3254	Decals
PRB2683	Clutch
PRB2684	Clutch Shoes
PRB2687	Clutch Spring (2)
PRB2688	Clutch Bearing
PRB2696	Clutch Bell
PRB0153	Propeller
PRB2674	Propeller Nut

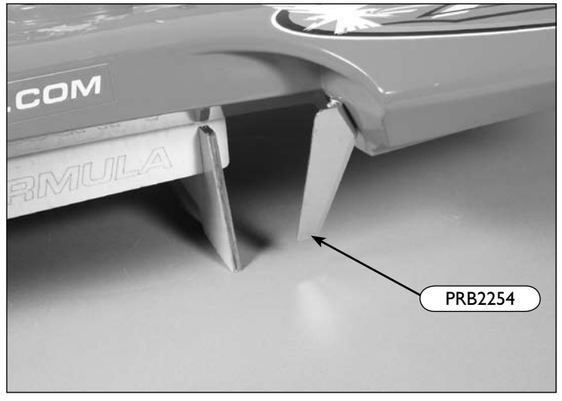
Appendix

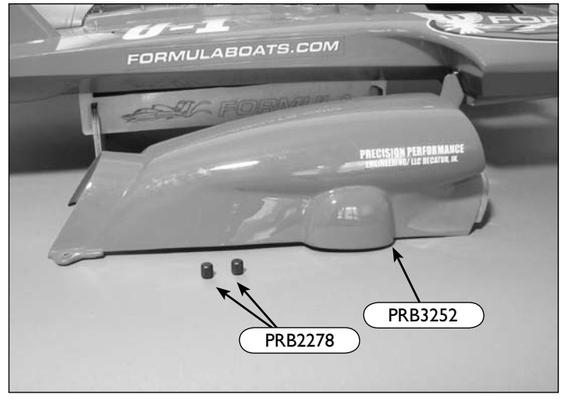












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Building and Operating Notes:

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